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ASSIGNMENT BOOKLET 4A

MAT1037 Pure Mathematics 10
Module 4: Section 1 Assignment

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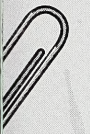
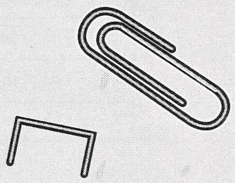


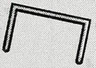
Pure MATHEMATICS 10

Module 4

Number Connections

ASSIGNMENT BOOKLET 4A





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Alberta LEARNING

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Summary

	Total Possible Marks	Your Mark
Section 1 Assignment	50	

Teacher's Comments

Pure Mathematics 10
Module 4: Number Connections
Assignment Booklet 4A
Section 1 Assignment
Learning Technologies Branch
ISBN 0-7741-2146-7

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ASSIGNMENT BOOKLET 4A
PURE MATHEMATICS 10: MODULE 4
SECTION 1 ASSIGNMENT

Your mark for this module will be determined in part by how well you do your assignments.

This Assignment Booklet is worth 50 marks out of the total 100 marks for Module 4. The value of each assignment and each question is stated in the left margin.

Work slowly and carefully. If you have difficulty, go back and review the appropriate topic.

Be sure to proofread each assignment carefully.

(50)

Section 1 Assignment: The Real Number System

Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.

⑤ **1.** Name all of the sets of numbers to which each of the following belongs.

a. $\sqrt{25}$ ____________________

b. 3.303 003 000 300 003… ____________________

c. $-3\sqrt{5}$ ____________________

d. 4.125 ____________________

e. 0 ____________________

f. −12 ____________________

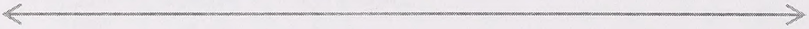
g. $0.0\overline{6}$ ____________________

h. $\sqrt[3]{9}$ ____________________

i. $-\frac{2}{9}$ ____________________

j. 18 ____________________

② **2.** **a.** Given that x is a real number, graph $-5 \le x < 4$ on the number line given.



② **b.** Are there any gaps or holes in the real number line? Explain.

____

____

____

④ **3.** Arrange the following radicals in order from least to greatest.

$8,\ 2\sqrt{15},\ 3\sqrt{5},\ 4\sqrt{7},\ 5\sqrt{3}$

④ **4.** Complete the following table.

Radical	**Estimation**	**Decimal Approximation (to 4 decimal places)**
$\sqrt{418}$		
$\sqrt{0.159}$		
$\sqrt[3]{130}$		
$\sqrt[3]{-345}$		

② **5.** Estimate each of the following expressions. Then, use a calculator to find a decimal approximation, rounded to the nearest tenth.

a. $2\sqrt{5}+3\sqrt{2}$

b. $4\sqrt{3}\times 2\sqrt{10}$

② **6.** Write the following radicals as mixed radicals in simplest form.

a. $\sqrt{48}$

b. $5\sqrt{18}$

② **7.** Write the following mixed radicals as entire radicals.

a. $2\sqrt{10}$

b. $4\sqrt{6}$

8. Simplify the following expressions. **Note:** Do not give the decimal approximation.

① **a.** $6\sqrt{2}-2\sqrt{2}+3\sqrt{3}$

① **b.** $\sqrt{40}+\sqrt{90}$

① **c.** $\sqrt{3}\left(2\sqrt{2}+3\sqrt{3}\right)$

① **d.** $2\sqrt{5}\left(4\sqrt{2}-5\sqrt{6}\right)$

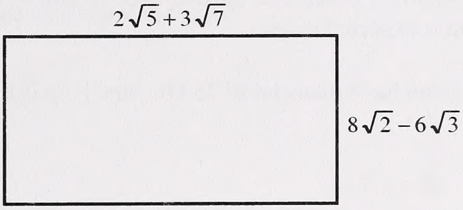
① **e.** $\left(\sqrt{6}-\sqrt{5}\right)\left(\sqrt{6}+\sqrt{3}\right)$

① **f.** $\left(2\sqrt{11}+\sqrt{3}\right)^2$

① **g.** $\left(\sqrt{7}+\sqrt{5}\right)\left(\sqrt{7}-\sqrt{5}\right)$

① **h.** $\dfrac{\sqrt{6}}{2\sqrt{5}-\sqrt{3}}$

9. The following diagram shows the dimensions of a rectangle.



① **a.** Write and simplify an expression for the perimeter of the rectangle.

① **b.** Write and simplify an expression for the area of the rectangle.

⑧ **10.** Complete the following chart.

Radical Form	Exponential Form	Standard Form
$\sqrt[4]{16^3}$		
	$16^{\frac{1}{2}}$	
$(\sqrt[3]{-27})^2$		
	$4^{-\frac{3}{2}}$	

② **11.** To describe violent storms, such as hurricanes and tornadoes, meteorologists use the formula $D^3 = 830t^2$, where D is the diameter (in km) of the storm and t is the time (in h) that the storm is expected to last.

If a storm has a diameter of 25 km, how long is it expected to last?

⑤ **12.** The frequency of a note on the piano is measured in vibrations per second, or hertz (Hz). The frequency of middle C is 262 Hz. The frequency of each of the notes above middle C is a multiple of the frequency of middle C.

Complete the following chart. Round each frequency to the nearest whole number of hertz.

Note	**Frequency (Hz)**
C	262
C#	$2^{\frac{1}{12}} \times 262 =$
D	$2^{\frac{2}{12}} \times 262 =$
D#	$2^{\frac{3}{12}} \times 262 =$
E	$2^{\frac{4}{12}} \times 262 =$
E#	$2^{\frac{5}{12}} \times 262 =$

②

13. Three students guess the number of jelly beans in a jar. Kyle guessed 545, Franco guessed 475, and Suzi guessed 490. One guess was wrong by 25, another by 30, and another by 40. How many jelly beans were there in the jar?

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ASSIGNMENT BOOKLET 4B

MAT1037 Pure Mathematics 10
Module 4: Section 2 Assignment and Final Module Assignment

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Time Spent on Assignment: ________________

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Module Number: ________________

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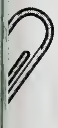
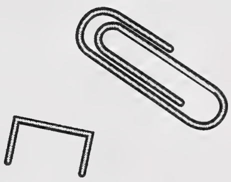


Pure MATHEMATICS 10

Module 4

Number Connections

ASSIGNMENT BOOKLET 4B



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Summary

	Total Possible Marks	Your Mark
Section 2 Assignment	35	
Final Module Assignment	15	
	50	

Teacher's Comments

Pure Mathematics 10
Module 4: Number Connections
Assignment Booklet 4B
Section 2 Assignment and Final Module Assignment
Learning Technologies Branch
ISBN 0-7741-2147-5

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ASSIGNMENT BOOKLET 4B
PURE MATHEMATICS 10: MODULE 4
SECTION 2 ASSIGNMENT AND FINAL MODULE ASSIGNMENT

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㉟ Section 2 Assignment: Number Patterns

Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.

1. You are given the following arithmetic sequence:

100, 96, 92, 88, …, −24

② **a.** Find the general term.

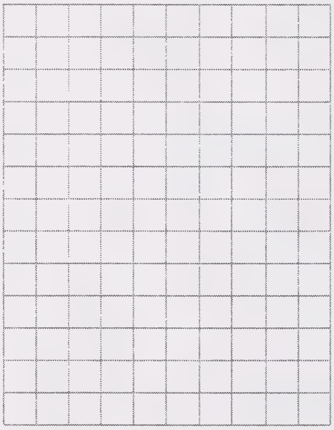
② **b.** Find the 4th term and the 19th term.

② **c.** Determine how many terms are in the sequence.

② **2. a.** Find the six arithmetic means between 11 and 60.

② **b.** What is the common difference in the sequence in 2.a.?

② **c.** Graph t_n versus n for the sequence in 2.a.



③ **3. a.** Insert four geometric means between 7 and 1701 so that the 6 terms form a geometric sequence.

② **b.** What is the common ratio in the sequence in 3.a.?

② **c.** Graph t_n versus n for the sequence in 3.a.

② **4.** Find the sum of the first 50 terms of the following arithmetic sequence:

2, 7, 12, 17, …

5. A certain computer programmer's salary is $38 750 in the 1st year. It is $68 750 in the 6th year. The annual raise is the same each year.

② **a.** If the computer programmer continues to receive the same raise each year, how much will he or she earn in the 10th year?

② **b.** What is the total amount that the computer programmer will earn in the 6 years?

② **6.** Janie invested a sum of money in a mutual-fund account. At the end of every year the amount of money was 120% of what she had at the beginning of the year. How much money did Janie initially invest if she had $1728 after 4 years?

7. Explain, in words, how to find each of the following products or quotients mentally.

① **a.** 682×5

① **b.** 16×50

① **c.** 986×0.5

① **d.** $334 \div 5$

① **e.** $98 \div 0.5$

③ **8.** Kyla, Tom, Barb, Sharon, and Mario are friends. Kyla is taller than Mario, and she is also taller than Sharon. Sharon is taller than Tom but shorter than Mario. Barb is the second tallest of the friends. Order the friends by height (tallest to shortest).

	Kyla	**Tom**	**Barb**	**Sharon**	**Mario**
Tallest					
Second tallest					
Third tallest					
Fourth tallest					
Shortest					

⑮

Final Module Assignment

Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.

⑤

1. Use a calculator to find the approximate decimal value of each of the following rational and irrational numbers. Round your answer to the nearest tenth.

a. $1\frac{5}{9}$

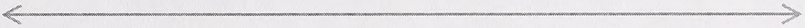
b. $-2\frac{17}{99}$

c. $\sqrt{37}$

d. $-2\sqrt{5}$

e. $\sqrt[3]{-15}$

⑤ **2.** Place each of the numbers in question 1 on a number line.



3. State whether each of the following sequences is an arithmetic sequence, a geometric sequence, or neither.

① **a.** 8, 14, 20, 26, …

① **b.** 8, 16, 32, 64, …

① **c.** 8, 13, 18, 23, …

① **d.** 8, 9, 17, 26, 43, …

① **e.** 8, 27, 64, 125, …

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